

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 9 and 11-34 are pending in the application, with claims 9, 20 and 31 being the independent claims. Claims 9 and 11 have been amended. Claims 13-19 are sought to be canceled. New claims 20-33 are sought to be added.

Claims 9 and 11 have been amended to conform to PTO rules governing nucleotide and/or amino acid sequence disclosures by replacing "X" with "Xaa." The specification has been amended accordingly, at page 5, last line, and at page 6, line 1.

New claims 20-33 are sought to be added. Support for new claims 20-32 can be found in the substitute specification, *inter alia*, at page 8, line 4, to page 11, line 18, and at page 77, line 1, to page 78, line 3. Support for new claim 33 can also be found in the substitute specification, at page 5, lines 22-28 (last paragraph).

These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendments and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

I. Objections to the Claims

The Examiner has objected to claims 9, 11 and 12 as not conforming to the PTO rules governing nucleotide and/or amino acid sequence disclosures (specifically, 37 C.F.R. § 1.822(b))

due to the presence of "X" rather than "Xaa" in SEQ ID NO: 8 of these claims. (Office Action, at page 5, paragraph 11.)

Applicants have amended claims 9, 11 and 12 to replace "X" with "Xaa" in the appropriate places within these claims. Claims 9, 11 and 12 are now believed to be in compliance with 37 C.F.R. § 1.822(b).

The Examiner's objection to claims 9, 11 and 12 has been fully accommodated. Withdrawal of the objection is respectfully requested.

II. Rejection of the Claims under 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claims 13-19 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention.

Specifically, the Examiner has rejected claims 13-16 as being indefinite because these claims allegedly lack essential steps in the process of identifying a phospholamban deactivator. (Office Action, at page 3, paragraph 5, lines 4-5.)

To expedite prosecution and without acquiescing in the propriety of the rejection, Applicants have canceled claims 13-19, rendering moot the Examiner's rejection. Applicants, however, have added new independent claim 20, which is directed to a method of identifying or designing a phospholamban deactivator. This claim incorporates some of the allegedly omitted steps suggested by the Examiner at page 3, paragraph 5, lines 5-10, of the Office Action. As claims 21-30 depend from claim 20, claims 21-30 also incorporate these same additional steps.

Dependent claim 21 also incorporates the additional steps of synthesizing and testing the potential phospholamban deactivator for activation of CaATPase in the presence of phospholamban, as suggested by the Examiner. Applicants have not explicitly incorporated into new claim 20 the step of obtaining a three dimensional structure of the phospholamban cytosolic domain, as this step is inherently present in step (b) of claim 20.

Accordingly, it is believed that the Examiner's rejection of claims 13-16 has been overcome and that this rejection can be withdrawn.

The Examiner has also rejected claims 17-19 as being indefinite because these claims allegedly lack essential steps in the process of identifying an area in the surface of phospholamban that functions as a target area to which a phospholamban deactivator binds. (Office Action, at page 3, paragraph 6, lines 1-3.)

To expedite prosecution and without acquiescing in the propriety of the rejection, Applicants have canceled claims 17-19, rendering the Examiner's rejection of these claims moot. Applicants, however, have added new independent claim 31, which is directed to a method of identifying a target area on the surface of phospholamban. New claim 31 incorporates the second of the two allegedly omitted additional steps suggested by the Examiner at page 3, paragraph 6, lines 3-5, of the Office Action. As new claim 32 depends from claim 31, claim 32 also incorporates these same additional step. Applicants have not explicitly incorporated the first of the two allegedly omitted step suggested by the Examiner (the step of obtaining a three dimensional structure of the phospholamban cytosolic domain) because this step is inherently present in step (b) of new claim 31.

Accordingly, it is believed that the Examiner's rejection of claims 17-19 has been overcome and that this rejection can be withdrawn.

The Examiner has rejected claim 14 as indefinite due to use of the terms 'derived from said model' and 'to identify one or more said phospholamban deactivators,' which allegedly render the claim indefinite because "it is not clear how different the distance measurements and electrostatic properties for the phospholamban deactivator as compared to those in the model" must be, "what the model is, e.g., is it the cyclic peptide or the complex of the cyclic peptide and phospholamban, and how many phospholamban deactivators are identified." (Office Action, at pages 3 and 4, paragraph 7.)

To expedite prosecution and without acquiescing in the propriety of the rejection, Applicants have canceled claim 14, rendering the Examiner's rejection of this claim moot. Accordingly, it is believed that the Examiner's rejection of claim 14 has been overcome and that this rejection can be withdrawn.

The Examiner has also rejected claims 15 and 17-19 for being indefinite due to use of the term 'one or more molecular modeling techniques,' which allegedly renders the claims indefinite because "it is not clear how many molecular modeling techniques are used, and what are these molecular modeling techniques." (Office Action, at page 4, paragraph 8, lines 1-4.)

To expedite prosecution and without acquiescing in the propriety of the rejection, Applicants have canceled claims 15 and 17-19, thus rendering moot the Examiner's rejection of these claims.

Applicants thus submit that the Examiner's rejection of claims 15 and 17-19 has been overcome and that this rejection can be withdrawn.

The Examiner also has rejected claims 17-19 as being indefinite due to use of the terms 'can function' and 'can bind,' which allegedly renders these claims indefinite because "it is not clear to what extent the surface of phospholamban functions as a target area, and to what extent a phospholamban deactivator binds to the target area." (Office Action, at page 4, paragraph 9, lines 1-4.)

To expedite prosecution and without acquiescing in the propriety of the rejection, Applicants have canceled claims 17-19, thus rendering moot the Examiner's rejection of these claims. However, Applicants have added new claim 31, which is a redrafted form of canceled claim 17. New claim 31 omits the phrase 'can function' in canceled claim 17 and replaces the phrase 'can bind' in canceled claim 17 with the term 'binds.'

With respect to the Examiner's statement that "it is not clear to what extent the surface of phospholamban functions as a target area, and to what extent a phospholamban deactivator binds to the target area." (Office Action, at page 4, paragraph 9, lines 1-4.), Applicants direct the Examiner's attention to page 77, lines 1-17, and to page 77 line 31, to page 78, line 3, of the substitute specification, as well as Figures 4, 5, and 6 of the application as originally filed. These figures and sections of the specification indicate that the target area on the surface of phospholamban comprises those amino acid side chains of the phospholamban cytosolic domain which interact with the cyclic peptide when bound to the phospholamban cytosolic domain. Because the cyclic peptide is an example of a compound that binds to the ligand binding site of phospholamban, the target area thus represents that area on the surface of phospholamban which functions as the ligand binding site for a phospholamban deactivator.

Applicants submit that the Examiner's rejection of claims 17-19 has been overcome and that this rejection can be withdrawn.

Lastly, the Examiner has rejected claim 19 as being indefinite due to use of the term 'one or more amino acid side chains of phospholamban,' which allegedly renders the claim indefinite because "it is not clear how many amino acid side chains of phospholamban in the area that interact with the cyclic peptide." (Office Action, at page 4, paragraph 10.)

To expedite prosecution and without acquiescing in the propriety of the rejection, Applicants have canceled claim 19, rendering the Examiner's rejection moot.

The Examiner's rejections of claims 13-19 under 35 U.S.C. § 112, second paragraph, have been fully accommodated or rendered moot. Withdrawal of these rejections is respectfully requested.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

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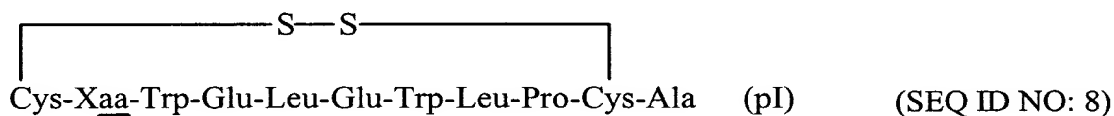
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Version with markings to show changes made

In the specification:

At page 5 of the substitute specification filed on October 3, 2001, last paragraph, at line 29:



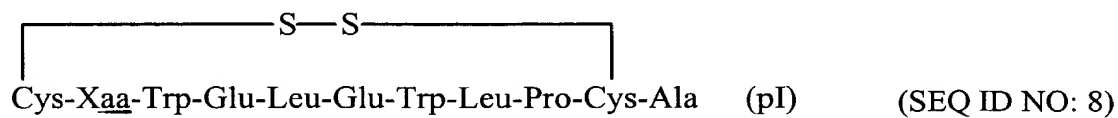
At page 6 of the substitute specification, first paragraph, line 1:

X_{aa} is preferably Tyr or Ala.

In the claims:

Claims 9 and 11 were amended as follows:

9. (Twice amended) A cyclic peptide having the structure:



wherein X_{aa} is Tyr or Ala.

11. (Once amended) A peptide of claim 9, wherein Xaa is Tyr (SEQ ID NO:10).

Claims 13-19 were canceled.

New claims 20-34 were added.